

Description of Rules

Appendix A

This appendix contains a description of each rule that results in a finding by the DASD Component of CPEXpert. The description summarizes the rule, lists predecessor rules, discusses the rationale for the finding, and recommends action.

The summary of the rule presents a short description of the finding.

The predecessor rules are listed so you can follow the line of reasoning leading to a particular rule being executed.

The discussion describes as much as necessary of the operation of the computer system (the hardware, MVS, the Workload Manager, etc.) as it relates to the particular rule. The purpose of the discussion is to explain the reasoning behind the rule, and what causes the rule to be produced.

The recommendations suggest possible actions that should be considered based on the findings. In many cases, multiple possible actions are listed. You must determine which actions should be taken (this determination is based upon the suitability of the actions to your own environment, the financial implications of the action, and the "political" acceptability of the action.)

The rules are organized in numerical order. However, not all numbers are represented. The LIST OF RULES in this appendix lists all rules that are included in the initial release of the DASD Component.

The DAS2nn rules are very similar to the DAS1nn rules. The major difference in the DAS2nn rules is that they relate to the "expanded" analysis of "loved one" workload. Consequently, the narrative is somewhat different. However, the DAS2nn rules will often refer you to the DAS1nn rules for more detailed discussion and suggestions.

You may wish to read all of the rules in this appendix, just to see the type of problems that are encountered in different installations. However, it is not necessary to read all of the rules. It is necessary only to read the rules that apply to your installation. The rules that apply to your installation are identified by the report produced from the DASCPE Module.

Some of the rules (such as seek analysis) apply only to legacy systems (e.g., 3380 drives attached to 3990-2 control units). CPEXpert automatically detects the type of device and controller, and either invokes or suppresses rules that apply to legacy systems. The rules that apply only to legacy systems are marked with an asterisk in the listing of rules.

List of Rules

<u>RULE</u>	<u>DESCRIPTION</u>
DAS000	Sysplex performance characteristics of significant volumes
DAS050	Performance characteristics of significant volumes
DAS100	Volume with worst overall performance
DAS102	Volume with next worst overall performance
DAS105	Volume performance was not consistently poor in any area
DAS110*	Seeking was the major cause of I/O response delay
DAS111*	Seeking was probably caused by independent applications
DAS112*	Seeking was probably caused by a single application
DAS113*	Worst seeking was probably caused by independent applications
DAS114*	Worst seeking was probably caused by a single application
DAS115*	Seeking was cause of I/O delay on page pack
DAS120*	Missed RPS was major cause of I/O response delay
DAS121*	Volumes contributing to missed RPS
DAS123*	Non-DASD devices contributed to RPS delay
DAS125*	Applications contributing to RPS delay
DAS130	PEND time was major cause of I/O delay
DAS131	PEND delay time was caused by channel busy
DAS132	PEND delay time was caused by director port busy

* = These rules apply only to legacy systems.

<u>RULE</u>	<u>DESCRIPTION</u>
DAS133	PEND delay time was caused by controller busy delays
DAS134	PEND delay time was caused by device busy delays
DAS135	PEND time was caused by other delays
DAS140	High connect time was major cause of I/O response delays
DAS150	High IOSQ was major cause of I/O response delays
DAS160	Disconnect was major cause of response delay
DAS170	There did not appear to be a problem with the device
DAS180	Applications accessing the volume with the worst performance
DAS185	Applications accessing the volume during the period with worst performance
DAS200	Volume with worst overall performance from the perspective of the critical workload
DAS202	Volume with next worst overall performance from the perspective of the critical workload
DAS205	Volume performance was not consistently poor in any area
DAS210*	Seeking was the major cause of response delay to the critical applications
DAS220*	Missed rotational position sensing was major cause of response delay to the critical applications
DAS221*	Volumes contributing to missed rotational position sensing
DAS223*	Non-DASD devices contributed to RPS delay
DAS225*	Applications contributing to RPS delay

* = These rules apply only to legacy systems.

<u>RULE</u>	<u>DESCRIPTION</u>
DAS230	Large PEND time was major cause of response delay to the critical applications
DAS231	PEND delay time was caused by channel busy
DAS232	PEND delay time was caused by director port busy
DAS233	PEND delay time was caused by controller busy delays
DAS234	PEND delay time was caused by device busy delays
DAS235	PEND delay time was caused by other delays
DAS240	High connect time was major cause of response delays to the critical applications
DAS250	High IOSQ was major cause of response delays to the critical applications
DAS260	High disconnect time was major cause of response delay to the critical applications
DAS270	There did not appear to be a problem with the device
DAS280	Non-critical job steps used this volume and were a major cause of response delays to the critical applications
DAS285	Non-critical job steps used this volume during the period of worst performance and were a major cause of response delays to the critical applications
DAS287	Other applications did not reference the volume

* = These rules apply only to legacy systems.

<u>RULE</u>	<u>DESCRIPTION</u>
DAS300	Perhaps shared DASD caused performance problems
DAS385	Applications potentially causing worst shared DASD conflicts
DAS390	Shared DASD conflicts did not cause performance problems
DAS400	Access characteristics of significant data sets

<u>RULE</u>	<u>DESCRIPTION</u>
DAS600	Excessive Control Area (CA) splits occurred
DAS604	Excessive secondary extents were allocated
DAS605	Excessive extents were used and secondary allocation unit was small
DAS606	Primary or Secondary allocation unit was small
DAS607	VSAM data set is close to maximum number of extents
DAS610	Relatively small CI size was used for sequential processing
DAS611	Relatively large CI size was used for direct processing
DAS612	Relatively large CI size was used for mixed processing
DAS620	The number of data buffers should be increased
DAS621	The number of index buffers should be equal to index levels
DAS622	The number of index buffers should be more than STRNO value
DAS625	NSR was used, but a large percent of the access was direct
DAS635	LSR was used, but a large percent of the access was sequential